

INTERNATIONAL SEARCH REPORT

International Application No

GB2004/003419

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H05B33/10 H05B33/14 H05B33/20 H05B33/22 C09K11/56

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H05B C09K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data, INSPEC, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 998 171 A (MATSUSHITA ELECTRIC IND CO LTD) 3 May 2000 (2000-05-03) column 4 - column 9; claims; figures	1, 33, 34, 36-39, 41, 42
X	US 5 598 058 A (LAPOINTE BRADLEY J) 28 January 1997 (1997-01-28) columns 2-5; claims	1, 5, 33, 34, 36-38, 41, 42
X	PATENT ABSTRACTS OF JAPAN vol. 017, no. 631 (P-1648), 22 November 1993 (1993-11-22) & JP 05 204320 A (KANSEI CORP), 13 August 1993 (1993-08-13) abstract	1, 10-15, 19, 22-24, 32, 41
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the international search

17 January 2005

Date of mailing of the international search report

26/01/2005

Name and mailing address of the ISA

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2001/035716 A1 (MURASKO MATTHEW) 1 November 2001 (2001-11-01) page 1 - page 4; claims; figures -----	33,34, 36-43
X	RACK P D ET AL: "The structure, device physics, and material properties of thin film electroluminescent displays" MATERIALS SCIENCE AND ENGINEERING R: REPORTS, ELSEVIER SEQUOIA S.A., LAUSANNE, CH, vol. 21, no. 4, 1998, pages 171-219, XP004113959 ISSN: 0927-796X the whole document -----	1,12,35, 36,38, 39,41-43
X	US 4 963 788 A (KING CHRISTOPHER N ET AL) 16 October 1990 (1990-10-16) the whole document -----	10-12, 14,19, 22-32, 35-37,42
X	PATENT ABSTRACTS OF JAPAN vol. 014, no. 257 (E-0936), 4 June 1990 (1990-06-04) & JP 02 078188 A (ALPS ELECTRIC CO LTD), 19 March 1990 (1990-03-19) abstract -----	5,38-40, 42
X	PATENT ABSTRACTS OF JAPAN vol. 1995, no. 03, 28 April 1995 (1995-04-28) & JP 06 342689 A (NIPPON SEIKI CO LTD), 13 December 1994 (1994-12-13) abstract -----	5,34, 36-38,42
X	WO 94/15442 A (UNITED TECHNOLOGIES CORP) 7 July 1994 (1994-07-07) the whole document -----	10, 13-15, 25, 27-29, 35,38,39
X	PATENT ABSTRACTS OF JAPAN vol. 1997, no. 07, 31 July 1997 (1997-07-31) & JP 09 069388 A (SEIKOSHA CO LTD), 11 March 1997 (1997-03-11) abstract -----	3,5,7,8, 10,33, 36,38,39
X	US 2003/022018 A1 (VOSKOBONIK MOSHE ET AL) 30 January 2003 (2003-01-30) the whole document -----	3,5,7,8

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Box II Observations where certain claims were found unsearchable (Continuation of Item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 2, 4, 6, 9, 16, 17, 18, 20, 21, 31
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: 2,4,6,9,16,17,18,20,21,31

In present claims 1-10,14-18,20,21,26,27,30,31,36,42 a lack of clarity (and conciseness) arises within the meaning of Article 6 PCT to such an extent as to render a meaningful search of the claims impossible.

Consequently, the search has been carried out for those parts of the application which do appear to be clear (and concise), namely

- a) claim 1: first paragraph up to "by a layer of insulating material".
- b) claims 2,4,6,9,16,17,18,20,21,31: no search
- c) claim 3: insulator material blended with inks or dyes
- d) claim 5: phosphor material blended with inks or dyes
- e) claims 7, 8: phosphor material and insulating material are blended with (same) coloured material
- f) claim 10: display is provided with a transparent material as front filter/absorber
- g) claim 14: filter/absorber is provided in segments
- h) claim 15: filter is positioned to cover the outside of the substrate
- i) claim 26: the specularly-reflective filter/absorber is a multilayer colour film
- j) claim 27: the specularly-reflective filter/absorber is a scattering white layer
- k) claim 30: the transparent front electrode is replaced with a transparent metallic electrode
- l) claim 36: an electroluminescent display
- m) claim 42: the group of related segments is the standard seven segment group

Present claims 9,10,16-18,21,27 relate to a product defined by reference to a desirable characteristic or property, namely

a) claim 9: wherein an additional layer of suitably-coloured material is formed between the substrate and the insulator layer so as effectively to mask the insulator layer from view and thus to present the impression of a continuous layer when the combination is viewed through the transparent electrode.

b) claim 10: '...!so as to modify the manner in which external light entering the display from the ambient surroundings is transmitted thereinto and then reflected back.

c) claim 16: wherein the light reflected off the front of the display is very much greater than the light reflected off any of the internal interfaces.

d) claim 17: wherein the light is reflected from the substrate/phosphor interface should match in colour and hue the light reflected from the substrate/insulator interface.

e) claim 18: wherein the reflectance spectrum of the filter is shifted in wavelength compared to the transmittance spectrum of the filter, so that the colour /hue of the emitted light from the phosphor is not the same as that of the reflected light from the very front surface on the display.

f) claim 21: wherein the front filter has a transmission colour that matches the light emitted by the display's lightable areas when they are "on", and wherein the phosphor and the insulating/dielectric material

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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

are coloured to have the complementary colour to the filter transmission colour.

g) claim 27: '...! and the highly scattering film scatters light essentially uniformly over the visible spectra.

An attempt is made to define the product by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible.

Consequently, the search has been carried out for those parts of the claims which appear to be clear, supported and disclosed, namely those parts:

a) claims 9,16-18,21: no search

b) claim 27: wherein the specularly-reflective filter/absorber layer is a scattering white layer

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

INTERNATIONAL SEARCH REPORT

Information on patent family members

ational Application No

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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JP 02078188	A	19-03-1990	JP 2088875 C JP 8004037 B	02-09-1996 17-01-1996
JP 06342689	A	13-12-1994	NONE	
WO 9415442	A	07-07-1994	CA 2151465 A1 EP 0676120 A1 JP 8509834 T RU 2119274 C1 WO 9415442 A1 US 5596246 A	07-07-1994 11-10-1995 15-10-1996 20-09-1998 07-07-1994 21-01-1997
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